

We Claim:

1. A method of manufacturing a metallic current collector for use in an electrochemical of galvanic cell, comprising the steps of:

(i) perforating a solid, flat metal strip using a continuous process that results in deformation of the strip at least locally near the perforations; and

(ii) annealing the perforated strip at a temperature below the melting point of said metal or metal-alloy to yield a recrystallized microstructure therein.

2. A method according to claim 1, wherein said recrystallized microstructure contains a minimum of 50% special grain boundaries.

3. A method according to claim 1, wherein said continuous process is a process of reciprocating expansion.

4. A method according to claim 1, wherein said continuous process is a process of rotary expansion.

5. A method according to claim 1, wherein said continuous process comprises punching perforations through said metal strip.

6. A method according to claim 1, wherein said metal is selected from lead or a lead alloy.

7. A method according to claim 2, wherein said metal is selected from lead or a lead alloy.

8. A method according to claim 6, wherein the alloying element in said lead-alloy is selected from the group consisting of Ca, Sr, Ba, Sb, As, Al, Sn, Ag and Bi or combinations thereof.

9. A method according to claim 7, wherein the alloying element in said lead-alloy is selected from the group consisting of Ca, Sr, Ba, Sb, As, Al, Sn, Ag and Bi or combinations thereof.

10. A method according to claim 8, wherein said step of annealing carried out at a temperature between 100 and 300°C for a duration of between 10 seconds and 20 minutes.

11. A method according to claim 9, wherein said step of annealing carried out at a temperature between 100 and 300°C for a duration of between 10 seconds and 20 minutes.

12. A method according to claim 9 or claim 10, wherein said metallic current collector is a lead-acid battery grid.

13. A method according to claim 1, further comprising the step, following step (i), of quenching said perforated strip.

14. A method according to claim 6 or claim 7, further comprising the step, following step (ii), of cooling the perforated strip to a temperature below 80°C.

15. A method according to claim 1, wherein a strip accumulator is used for feeding said solid, flat metal strip into a perforator in step (i) to eliminate or reduce stoppages in said continuous process.

16. A method according to claim 1, wherein said solid, flat metal strip is heat-treated prior to carrying out step (i).

17. A metallic current collector produced by the method of claim 1 or claim 2.